

Application No. 10/596,727

In response to the Office Action dated May 7, 2008

and the Advisory Action dated September 29, 2008

October 14, 2008

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AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

Claims 1-6 (canceled).

Claim 7 (currently amended): A signal output circuit comprising:
an output transistor of an NPN type bipolar transistor arranged to output an output signal;

a ground side output control transistor that turns ON and OFF according to an input signal so that turning ON drops the potential of a base of the output transistor to turn OFF the output transistor, and turning OFF raises the potential of the base of the output transistor to turn ON the output transistor;

a base current supply resistive element arranged to supply current from an input power supply to the base of the output transistor when the output transistor turns ON;

a power supply side output control transistor located between the base current supply resistive element and the base of the output transistor and arranged to turn ON and OFF in opposite ways as the ground side output control transistor according to the input signal;

a ground side current bypass transistor, that turns ON and OFF in the same way as the ground side output control transistor according to the input signal ~~so that turning ON allows the current of the base current supply resistive element to flow in order to drop the voltage applied to the power supply side output control transistor and turning OFF stops the current of the base current supply resistive element from flowing~~; and

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a current limitation resistive element including a first end connected to the base current supply resistive element and a second end connected to the ground side current bypass transistor~~located between the ground side current bypass transistor and the base current supply resistive element that limits the current of the base current supply resistive element that turning ON of the ground side current bypass transistor allows to flow; wherein when the output transistor turns OFF, turning ON the ground side current bypass transistor allows current to flow from the base current supply resistive element into the ground side current bypass transistor through the current limitation resistive element to drop the voltage applied to the power supply side output control transistor.~~

Claim 8 (previously presented): The signal output circuit according to Claim 7, further comprising an inversion circuit to which the voltage between the ground side current bypass transistor and the current limitation resistive element is input so as to invert the input voltage to control the power supply side output control transistor.

Claim 9 (previously presented): The signal output circuit according to Claim 8, further comprising a second current limitation resistive element connected to the output of said inversion circuit.

Claim 10 (previously presented): The signal output circuit according to Claim 7, wherein the ground side output control transistor, the power supply side output control transistor and the ground side current bypass transistor are MOS transistors.

Claim 11 (previously presented): The signal output circuit according to Claim 7, wherein the base current supply resistive element, the current limitation resistive element and the second current limitation resistive element are resistors.

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Claim 12 (previously presented): A power supply voltage monitoring device comprising the signal output circuit according to Claim 7, further comprising:

resistive elements connected in series and arranged to divide the power supply voltage; a reference voltage generation circuit arranged to generate the reference voltage; and a comparator arranged to compare the voltage at a mid-point of said resistive elements connected in series and the reference voltage generated by said reference voltage generation circuit so as to use the comparison output as an input signal of the signal output circuit, wherein the output signal of the signal output circuit is output as a power supply voltage monitoring signal.

Claim 13 (previously presented): A power supply voltage monitoring device comprising the signal output circuit according to Claim 8, further comprising:

resistive elements connected in series and arranged to divide the power supply voltage; a reference voltage generation circuit arranged to generate the reference voltage; and a comparator arranged to compare the voltage at a mid-point of said resistive elements connected in series and the reference voltage generated by said reference voltage generation circuit so as to use the comparison output as an input signal of the signal output circuit, wherein the output signal of the signal output circuit is output as a power supply voltage monitoring signal.

Claim 14 (previously presented): A power supply voltage monitoring device comprising the signal output circuit according to Claim 8, further comprising:

resistive elements connected in series and arranged to divide the power supply voltage; a reference voltage generation circuit arranged to generate the reference voltage; and a comparator arranged to compare the voltage at a mid-point of said resistive elements connected in series and the reference voltage generated by said reference voltage generation circuit so as to use the comparison output as an input signal of the signal output circuit,

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wherein the output signal of the signal output circuit is output as a power supply voltage monitoring signal.